

# Earth Science

Rockhounds' NATIONAL Magazine



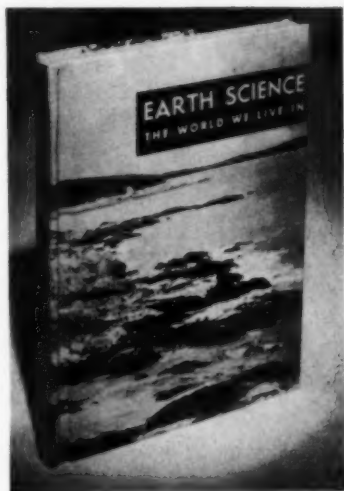
Dr. Fleener and Friends in the Field. (see page 24.)

35¢

March-April, 1956

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# Earth Science

\$2 a Year

Vol. 9, No. 2

Official Publication of the Midwest Federation of Mineralogical Societies

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## EDITOR'S MEMO PAD

**A**RE YOU REALLY ACQUAINTED with the minerals and fossils now in your collection, or are they merely only a name, and sometimes not even that? Perhaps after all this may not be such a foolish question as it might at first seem, for those who only admire and never study these beautiful handiworks of nature are truly missing the boat.

Believe me, herein lies one of the finest opportunities to stimulate your imagination and improve the intellect yet known, one which is seldom afforded by any other hobby. If these specimens could only speak with you, nearly anyone of them could relate such an interesting story concerning its life history and personality, that it would intrigue you for hours at a time. It might prove to be even more enjoyable than much of our best (?) selling fiction.

In fact, *these minerals can speak to you*, but first you must know their language, which is geology, physics, and chemistry. Oh! you will perhaps say, these are all subjects which are entirely foreign to me, I do not even know their vocabulary. If you do not, then study your minerals, and they will afford you the best opportunity to learn the fundamentals of science the easiest way that we know of. Little by little you will acquire a vocabulary, and later almost before you know it, first will come a faint glimmering fringe of knowledge, and then suddenly, almost without your being aware of it, an understanding of what it is all about will unfold in your mind.

Beyond this point it will be up to you. If you will read, ask questions, experiment, and observe, additional knowledge will come easy. After all it will be your powers of observation that will carry you farthest.

What will you study, and what can you learn? Fundamentally there is no end or limit to the extent of such knowledge.

First, you will learn of the Earth and how it was made, that is geology. You will learn of the physical properties and personalities of the minerals, that is physics. You will learn how they were put together or formed, and of what

they are made, and that is chemistry. And finally you will learn of their value and usefulness to man, and that is economics.

Long before you have completed your studies, you will come to enjoy and appreciate your minerals more than you ever thought possible, and will, we hope, be glad that we have called your attention to all this. Now for a little advice: Let us really get busy and learn something worthwhile from our hobby.

### *Persons & Places*

The editor is very glad to say that word has been received that our loyal friend and author VICTOR SHAW, whose notable series of articles on "Famous Lost Mines" have appeared from time to time in earlier volumes of EARTH SCIENCE, is "now home again and back around" following a year's sojourn in a local sanatorium where "much of the time he lay flat on his back." He says that he reached the age of 83 years on December 12, and it is our fondest hope that he will again be able to produce stories that he has in mind, as none that we have ever published have had more favorable comment or popular appeal. Calls still come in regularly for back issues containing his most interesting stories.

The AMERICAN FEDERATION OF MINERALOGICAL SOCIETIES will hold its convention this year jointly with the MIDWEST FEDERATION at ST. PAUL, MINNESOTA, on July 12-13-14-15, at the Home Activities Building on the Minnesota State Fair Grounds. The host club will be the MINNESOTA MINERAL CLUB, and very fine arrangements have been made to entertain all who attend the convention. Start planning your vacation now so you can attend. It will be something that you will never forget.

From the Wisconsin Geological Society comes the news that one of their members, ELMER R. NELSON, Curator of Geology of the Milwaukee Public Museum, is on a year's leave of absence, with his family, doing geological work and collecting for the museum in New Zealand. He will really have something to report to us when he returns home next September.

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Among the many fine exhibits to be made at the Midwest-American conclave in St. Paul, next July, perhaps none will attract more attention than that of the famous "Man-O'-War" mosaic fashioned by MR. AND MRS. JOSEPH PETTEPLACE of Wauzeka, Wisconsin, the premier showing of which was a special feature of the Midwest Convention at Detroit last summer. No one should miss the opportunity of seeing this fine work of art.

MRS. STELLA BOWICK's report of a lecture given by FRANK L. FLEENER, will be of special interest to those who read the article on "Collecting in the Queen Hill Quarry," by David C. Brown, in our November-December, 1955 issue. We have had requests for more information on fossil finds and we hope to have other articles along this line soon.

It is worthy of note that the mineral and earth science hobby is of sufficient importance that it is beginning to be recognized by the planners of TV programs throughout the country. Several programs playing up the hobby have been recently presented. On January 24, the Geode Industries operated by "THE SMITHS" at New London, Iowa, was featured on a live TV program on KTVO-TV Ottumwa, Iowa, which met with favorable response. Clubs where TV is available locally should not miss this opportunity to boost their cause.

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DR. THOMAS B. NOLAN, whose appointment by President Eisenhower to succeed Dr. William E. Wrather as Director of the Geological Survey was confirmed by the Senate, is here shown taking the oath of office on January 27.

Dr. Nolan, who is eminently qualified for this new position, is a native of Greenfield, Massachusetts, a graduate and Ph.D., of Yale University, and has been a civil service employee since his appointment as junior geologist in 1924.

Dr. Nolan is a past president of the Society of Economic Geologists, and a member of many other scientific and professional organizations, including the Geological Society of America, the Mining and Metallurgical Society of America, and the Geological Society of Washington.

### *In Memoriam*

Many Midwest collectors and rockhounds scattered widely throughout the country will remember THOMAS FRIET as the proprietor of The Agate Shop, at Scenic, South Dakota. Although a jeweler by trade, he collected and sold fossils and mineral specimens from the nearby Bad Lands at his souvenir and lapidary shop in Scenic. It is with great regret that we must announce that he was found dead in his home on January 14, evidently having been murdered by unknown assailants on the previous night, robbery being thought to be the motive of the slaying. Acquaintances both in Scenic and elsewhere characterized Friet as a warm-hearted, kindly old man (81 years) who "hadn't an enemy in the world."

GUY E. HAZEN, for many years proprietor of Hazen's Fossil Museum, at Kingman, Arizona, passed away on January 3, at the Veterans Hospital at Whipple, Arizona. Few men had a wider acquaintance among lovers of the earth sciences than Guy, as thousands called him, and he will be greatly missed by all of his many friends. He contributed an excellent article on the "Sandstone Concretions of the Colorado Delta" to EARTH SCIENCE (November-December, 1954), which was very well received.

From Milwaukee comes the sad news of the passing of FATHER JOSEPH F. CARROLL, S. J., Professor Emeritus of Physics at Marquette University, on December 12, at the age of 63. Father Carroll was especially well known throughout the entire country as an eminent authority on earthquakes, and his ability as a seismologist was very widely recognized. His kindly spirit and genial disposition endeared him to thousands of former student and rockhound friends across the nation.

### *Authors*

Following the publication of our description of the "Man-O-War," (Mosaic Exquisitus) in our September-October issue, we had many requests for an article telling more of the details as to how the work was actually done. JOSEPH A. PHETTEPLACE, who exhibited his famous mosaic at the Midwest Convention in Detroit, has most kindly consented to tell us something of the trials and tribulations, as well as the joy, pleasure and hard tedious work which go into a project of this magnitude. To put it mildly, we are elated and feel honored to be able to present his story to our readers . . . MRS. FLORENCE L. CLARK is an author of considerable prominence and a long-time resident of McGregor, Iowa, where she has absorbed much of the atmosphere of one of the most scenic areas of the Midwest, known throughout the country as the "Switzerland of America" . . . DR. HERBERT W. KUHM, of Milwaukee, is an eminent dentist by profession and an ardent geologist and collector of fossils (particularly trilobites) by avocation. Rockhounds acquainted with his witty repartee, will be delighted but not surprised at what he has written for us this time . . . FRANK L. FLEENER, of Joliet, Illinois, is remembered by

our readers for his article on lithography and his series on coal . . . HARRY H. NELSON, of Riverside, Illinois, high school science teacher, is active in the Earth Science Club of Northern Illinois and geology co-editor of its *Earth Science News*.

### *Cover*

FRANK FLEENER giving a talk to a field trip group of rockhounds, who are learning about nature out of doors. What could be finer!

—BEN HUR WILSON, *Editor*

## THE PEBBLE PUPS OF RIVERSIDE

by HARRY H. NELSON

THIS CLUB IS A "W'help" of the senior rockhound organization, Earth Science Club of Northern Illinois, known locally as ESCONI. The home of the senior club is Downers Grove. Following the old precept, "As the twig is bent so the bow is inclined," Riverside rockhounds have embarked upon a pup training project. The time, the place and the sponsorship were propitious for such an undertaking. The sponsors included the President of the P.T.A., Ed McGrew, the Assistant Superintendent of Schools, Joe Bloom, the Knights, Reeds, Bonows, and the Science teacher, the author of this article, all ESCONI hounds in good standing.

This group started in the fall of 1954. About fifty children and their parents met in the Science room of the Junior High School. Jay Farr, who was at the time chairman of the senior ESCONI, started the group off, giving the group the benefit of similar experience with pebble pups he had organized at Downers Grove. The group was limited to children of the Junior High School, including grades six, seven and eight. The group agreed to meet once a month on the third Saturday of each month. Each meeting was to start at ten o'clock and close at twelve. At each meeting a special study was to be made of a rock, mineral or fossil. Special speakers familiar with the subject studied were to be secured. Where possible samples of the material studied were to be given to each member to encourage them to make collections.

The club has prospered. A year after its organization, over fifty children and parents attended the November meeting. The subjects studied have included, Calcite, Bauxite, Fern Fossils and Clean Streams. A special feature of the club's activities has been the field trips. These have included, a trip to the Consumer's Quarry south of LaGrange on Route 66, a trip to the strip mines of Braidwood, and a trip to the Field Museum in Chicago.

Our first trip, the one to the Consumer Quarry, drew nearly 100 children and their parents. Each and every child found samples of coral, brachiopods, calcite and fool's gold. It was a rugged hike and we nearly wore out some of the parents.

The Braidwood trip was especially fortunate for our club, because we accidentally met up with Mr. McLuckey of Coal City, an ESCONI member who operates the giant power shovel at the strip mines. He not only guided us to lush

fossil diggings, but also stayed on to explain the nature and identity of the concretions which were found in abundance.

Our third excursion was to the Field Museum of Natural History, located on Chicago's lake front. Here our group had the privilege of meeting Miss Dolla Weaver, a member of the museum's staff. Miss Weaver, who is the author of a booklet, "Pebbles for Puppies," has unusual talent for entertaining children. Her presentation includes clear descriptions of minerals, the history of their formation and the methods of identification. She followed this lecture-demonstration with a movie on rocks and minerals. A question and answer period followed the movie. Our pebble pups were loaded for her and kept her busy answering questions for a full half hour.

One of the interesting by-products of the club activities has been the interest developed on the part of the parents. Several of the parents have become so interested in the hobby, that they have joined the senior organization. A definite rule of the club stipulates that all children going on excursions must be accompanied by their parents or other adult sponsors agreeable to their parents. The club has a shifting membership. As the children graduate into senior high school, they usually leave the junior group. A few of these join the senior ESCONI. We can always count on a fresh crop of sixth graders who are waiting to become old enough to be eligible to join. So each fall season is a period of reorganization.

## BIRTHSTONES MARCH

BLOODSTONE is the accepted birthstone for March throughout the world and is the gem of Aries (the Ram) March 21st to April 19th, although the Aquamarine is frequently used as an alternative.

The Guardian Angel for March is Malchediel and his talismanic gem is the Ruby.

The Special Apostles are James and John.

The flower is the Violet or Anemone.

Lucky charms ascribed to this month are the Buddhist Prayer Wheel, Dog, Ivy Leaf, Horse Stag, Coins, Fish and Acorn.

The Bloodstone, or, as it was once called the Heliotrope, gets its name from the blood-red spots and blotches of red jasper or iron oxide which impregnates the stone. It was believed in early times, that a Roman soldier thrust his spear into the side of Christ as He was crucified and His blood dripped on to the rock of green jasper which supported the Cross and as the stains penetrated the stone so the Bloodstone had its genesis. One can readily understand from this, why it was used in early times as a preventative for the flow of blood, and history actually records the life of Vasari being saved by a piece of Bloodstone being slipped between his shoulders.

The Bloodstone is an opaque dark green stone, blotched and spotted with red and is very cheap in price.

The Aquamarine, which is used as an alternative, is, as its name suggests, the colour of the delicate, illusive blue and green of sea water: Especially so by artificial light.

It symbolises happiness and everlasting youth. Being a variety of Beryl, the Aquamarine is actually the same substance as the more expensive Emerald, but it is always treated as an entirely different stone.

The talismanic gem of the Guardian Angel Malchediel is the birthstone for July.

## APRIL

DIAMOND is the accepted birthstone for April but Americans, Russians, Italians and Jews are inclined to favour the Sapphire.

The Diamond is the gem of Taurus (The Bull), April 20th to May 19th.

The Guardian Angel for April is Ashmodei and his talismanic gem is the Topaz.

The Special Apostle is Philip.

The flower is the Daisy or Hawthorn.

Lucky charms ascribed to this month are the Dagger, Sword, Arrow, Pistol, Bomb and Soldier. Although the Diamond has been known for countless centuries, though a rarity at the time of Christ, it was not until the middle of the fifteenth century that they were able to be cut and polished. According to ancient traditions the Diamond is the emblem of fearlessness.

In early times it was well known for its supposed power of healing lunatics; but pulverised to powder and taken internally it was used as a most potent poison. A more fantastic and interesting belief was that it possessed sex and could multiply in consequence.

One superstition which does appear to ring true was that the gift of a Diamond "quickens affection and restores love between husband and wife."

Though not the most valuable of precious stones, it unquestionably exceeds all others in interest and importance, being the only gem consisting of one single element and is the hardest of all known natural substances. By far the majority of Diamonds are found in South Africa and the Belgian Congo but until the 18th century when they were found in Brazil, the only known sources were India and Borneo. The Indian mines however are now practically exhausted.

Colour and freedom from flaws are the most important qualities determining value, pure white or blue tinted stones being much preferred, but really good yellow Diamonds command a high price whilst brown stones are comparatively cheaper.

The Sapphire, favoured for April by other nations, is the birthstone for September and the talismanic gem for the Guardian Angel Ashmodei is the birthstone for November.

—KENNETH PARKINSON, F.G.A.,  
Hull, England

From Maine to California and from North Dakota to the Rio Grande, children and adults last year picked up rocks estimated at more than half a million dollars.

These were no ordinary rocks, says the Bureau of Mines, but gem stones common to the United States. They are the foundation of a hobby that finds some 50,000 persons combing the ridges and valleys, the streams and beaches for crystals and other forms to cut and polish into ornaments.

## SPECIAL METEORITE COLLECTION

Meteorites come to us from interplanetary space, some possibly from outside of our solar system. They are of great interest to the scientist and most intriguing to the collector. The set of 5 listed below is offered for **\$7.50**

**Canon Diablo, Arizona. Siderite** — complete, about 1½ x 2"

**Odessa, Texas. Siderite** — fragment — about ½"

**Willamette, Oregon. Siderite** — oxide crust — about 1 x 1"

**Holbrook, Arizona. Aerolite** — 4 pieces about 3/8" mounted on card

**Hugoton, Kansas. Aerolite** — fragment about 3/4"

## MY HOBBY IS COLLECTING ROCKS AND MINERALS

A splendid how to do it book for the beginner.

by David E. Jensen

Be prepared for summer field trips. Learn — How to Recognize Minerals, How to Classify Rocks, How to Test Rocks, Where to find Minerals, Collecting Equipment Essentials; How to Display Your Collection . . . . **\$2.95**

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**Beginner's Mineral and Rock Collection.** To acquaint collectors and students with rocks and minerals of common occurrence, 1 x 1" specimens of 25 minerals and 10 rocks are accurately identified in this set. **MC 105 . . . . \$2.50**

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## SPECIMENS FOR THE COLLECTOR

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**Ozocerite.** Utah. A naturally occurring wax 3 x 4", **\$2.20**

**Serendibite.** N. Y. A rare blue massive borosilicate from the second known world occurrence. Associated with other minerals 2 x 2", **\$2.50**; 2½ x 3", **\$5.00**

## FOR THE GEM CUTTER \*

**Norwegian thulite.** Attractive rose red, with some gray matrix **\$2.00** per ½ lb; **\$4.00** per lb

**Norwegian moonstone.** Dark gray feldspar with blue opalescence **\$1.00** per lb

(\* add 10% F.E. tax)

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This springtime inventory clearance provides you with the opportunity to obtain 10 different specimens of \$10.00 retail value for only **\$5.00**. These are all good clean specimens, some crystallized, some varieties, in sizes ranging from 1 x 2" to 3 x 4". You may order all quartz, all calcite, or half and half. A suite of 10 larger specimens (retail value of \$20.00) is available for only **\$10.00**.

All prices are list at Rochester, N. Y. — Minimum order **\$2.00**

Catalog FM 8 A listing of mineral specimens, geological collections, meteorites, equipment—Free



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## Mosaics Fascinate Me!

by JOSEPH A. PHETTEPLACE

THE MAKING OF MOSAICS is one of man's earliest forms of arts and crafts. It has been very difficult to get detailed information on methods of doing this type of art. In 1928 the author of this article applied at the Art Institute of Chicago to take a course in mosaics, but was told that they did not teach such a course and they did not know of anyone who did. The reason given was that there were few mosaic artists left in the world at this particular date, as the interest in this art had waned in previous years almost to the vanishing point.

The books available had very little information in them of value, but some information was obtained from Edgar Miller, who was at that time and still is one of our outstanding artists in the diversified fields of painting, sculpturing, woodcarving, etc. After numerous experimental projects during the years of '28, '29, and '30, the mosaic, "A Century of Progress" was started in 1931. It included ten thousand pieces of mother-of-pearl in natural colors and twenty-six hundred hours of labor went into the creation of this piece of art.

In the year 1937 a new mosaic, a portrait of a little girl, was begun. This picture was also made of mother-of-pearl approximately sixteen hundred pieces were used. After completing this picture the author considered the use of gem material but due to the war nothing was done until "Man-O-War" was started approximately three years ago, and completed in June of 1955.

I have been asked to write a short article on the general way in which a mosaic of this type is constructed. This will, however,

not be a detailed account, as it would take numerous pictures and drawings to show the complete method used. It is hoped and believed, however, that the average craftsman in cutting gem stones should be able to start and successfully complete a small project of his own after reading this account.

**STARTING YOUR MOSAIC.**—The start of any mosaic is your original design or picture. First, I would suggest that a simplified geometric pattern be attempted. Consider making your design to suit the following conditions: first, size of material on hand; second, color of material available; and third, limitation of equipment—such as, can you handle a three inch piece of material on your present trim saw or do you have to limit yourself to a size not any bigger than two inches? In color of stone remember that blending of colors should be accomplished in such a way as not to detract from the picture as a whole. Where contrasting colors are used and expected to be very pronounced, sometimes it is advisable to use a narrow dark piece of gem material between the two types of stone. This was done along the back of the horse in "Man-O-War" mosaic and accomplished its purpose well.

**WHAT ABILITY IS NEEDED?**—The question is frequently asked me, "What ability is needed to execute a mosaic?" Personally, I believe that all persons have some artistic abilities and are potentially artists. A craftsman is a person who can express his artistic ability by the use of a paint brush, carving tools, chisel, etc. If he has the ability to

use his tools in such a way as to bring forth the idea which he formulates in his mind, then he becomes a master artisan regardless of his chosen art, be it painting a tree, making mosaics or carving one of those weird designs we sometimes see at art shows. I would not worry about whether I could make a mosaic, I would just go ahead and make one.

#### WHAT TYPES OF MATERIAL TO USE?—

For a beginner in the making of mosaics I would suggest using some of the porcelain tile used in bathroom walls and floors. Draw a design on a water proof plywood board. Cut and shape your tile with the use of your diamond saw and carborundum wheel. Glue each piece on to the board with waterproof glue, fitting as closely as possible to the other pieces in your design. When your design has been completed, fill in between the pieces with cement made of water, fine sand and portland cement (which may be colored by use of dyes). You should now have a very nice table top which can be used in your home.

The usual method of making a mosaic involves cutting the material with a chisel and hammer. This is not practical when gem material is used because of the great loss of material through breakage and the fracturing of good pieces.

After one or two projects of this sort you can consider making a gem stone mosaic. Again your first thought should be your design, then the material. I would suggest that all material be bought by the chunk or purchased in uniform thickness in slabs. If you buy by the chunk I would advise slabbing it 3/16 inch thick, but only sawing part of each stone, as you may want to use some of the same material later to balance up your design in another part of the picture. You may also wish to saw the balance of the stone at a different angle to get a different design. Again, I would advise that the less expensive grades of gem material or stones be used, such as white flint, gray chert, black obsidian, red marble, granites, etc., until you get used to this harder material which is more difficult to

cut, so you will not have too great a loss.

A uniform hardness in your material is quite essential if you do not want one of the materials to undercut. In the picture "Man-O'-War," many hard hours of hand sanding and polishing were necessary because a few pieces of material were harder than the rest. Recently, I have discovered a layer of hard chert, which comes in white, gray and mixed gray and black swirls, which I intend to use when these colors are needed in my next project. If you look around your own locality you may also be able to find some material you can use.

WHAT TOOLS ARE NEEDED? In the making of "Man-O'-War" mosaic the following tools were used: One diamond drill to drill the hole for the white spot in the eye of the horse, still good. One sixteen inch slabbing saw blade, still good. Two six inch trim saws, both blades still good. (You will only need one.) And finally one 8 by 2 inch carborundum wheel, which was worn out in the project. In other words, one slabbing saw, one six inch trim saw, and one carborundum wheel are all that is needed for most mosaic work, plus sanding cloth and polishing powder.

Cutting and shaping your material on a trim saw and carborundum wheel involve a series of unique methods which would take many drawings to illustrate for all the different shapes, such as in "Man-O'-War" mosaic. An entire book could be written on this angle alone. However, all shapes are possible with the above equipment listed.

When you reach the point where you wish to make something more artistic than mosaic table tops by glueing pieces on waterproof plywood and filling between, then you have two methods in which to make mosaic pictures.

FIRST METHOD—Make a reverse drawing of your picture and cut all your material to face down on your drawing, then build a small wooden frame around it and fill with about one inch of light weight cement. Put a piece of hardware cloth the size of the picture in the cement at about half of its depth (chicken wire can be used

but is not as good).

**SECOND METHOD**—I will not give all the details on this method now as I ran into some difficulty using it on the "Man-O-War" mosaic. I am going to do some experimenting soon to perfect it, but the general idea is to make a drawing on paper, cut your material to fit the drawing, gluing each piece to the paper, using a special

dry cement, which is not true as wet unset cement was used.

After the original outline of "Man-O-War" was made, a period of about three months was used to study the bone and muscle structure of racing horses. This was very necessary, as you must know where each bone lies and where each muscle is placed, in order to put in the highlights



THE PHETTEPLACES LOOK AT "A CENTURY OF PROGRESS"

glue so the paper can be removed easily later. When the picture is completed it is turned upside down and you then proceed as in the previous method.

I would like to say at this point that there was a mistake in the previous article on the mosaic "Man-O-War" in *EARTH SCIENCE*, September-October issue. This was not a fault of Dr. Ben Hur Wilson but of an article in the paper which I sent him and neglected to read. It stated that this mosaic was put on a special piece of already

necessary to complete a picture that resembles the original. After this period of study, my wife and I proceeded to draw in all muscles on the picture sketch we had made of "Man-O-War."

At this point it became obvious that we were not going to get cherry tiger-eye in big enough pieces to be able to show all the highlights of the rippling muscles of a horse by pieces of material alone. So from here on, it became necessary to match two and three pieces together to properly show



THE AUTHOR AT WORK

the muscles and tendons of the part of the horse I was working on. As each section proceeded, such as where the neck joins the body of the horse, a piece of material had to be found which would tie the parts together without an abrupt break in the picture. In other words, there had to be smooth flow of color between the neck and front shoulder, still showing where the shoulder begins, but without a sharp contrasting piece. I call these pieces my tie-in pieces, as they tie the different parts of the body together without distorting the horse as a whole. The next time you see this mosaic I would recommend that you study these pieces in particular as they are the key pieces in the whole mosaic.

The background in the picture was made as inconspicuous as we could possibly make it and yet show proper depth, or the third dimension, which is so desirable in all pictures. Color played a very prominent part in this picture, which is exemplified by the

fact that the horse is made up almost completely of one color, cherry tigereye in its various shades. The chatoyancy in the tiger-eye was used in such a way that when a light is moved across the front of the picture the muscles appear to move. We purchased a fluorescent light in Detroit to put above this picture to give it more illumination, but we found this was a sad mistake, as this type of lighting seems to draw the color out of the picture and does not show it as it should be shown.

Many times I have been asked, "how many pieces of material were put into the picture of "Man-O'-War" in one day?" Seventeen pieces was the largest number done in a twelve hour period of time. In a picture of this kind as you add additional pieces some of the former pieces placed in the picture days before must be removed and replaced with either a deeper or lighter shade of color. As your picture progresses you must keep in mind the following things: first, where is your perspective view point, or what is supposed to be the closest point in your picture? Second, will the main subject in your picture be constructed in such a way as to allow you to put in the proper shadows in the background? In this picture the perspective point of view is in the right foreground. Therefore, the tail section of the horse will obviously appear nearer to the viewer, in which case in mosaic construction, where lines are always present, you should use a more subdued shading of color if possible, or the hip and thigh of the horse would appear to be the most important part of it. Because of the necessity of using a light colored tigereye in the back quarter section to show proper highlights and depths, I used a mixture of dark blue and dark red in the tail, which consists of quite a large section of material, therefore counteracting the bright pieces in the back quarter. The advantage of using gem material works out nicely here, as you can give the front portion of the horse a higher polish than the tail section, and achieve an appearance of nearness and yet keep your proper perspective in relation to

the whole picture.

WHERE DO YOU START?—Another question which is often asked is, "where do you start on a mosaic?" To me the answer has always been start with the hardest or most important part. In this case the eye was the beginning, as it was and is the most important part of this mosaic. It was one of the hardest parts to do. From this focal point you naturally follow down the face to the nostril then go back to the ears and neck. When this much is done you can work any section of the body of the horse you want to, depending on your material. Unlike a straight mosaic this should be

so they could be placed in a home and could be seen the same as ordinary paintings. To accomplish this, very small pieces must be used—some as small as a pin head. This gives one the sense of nearness. In the panorama view of the Chicago World Fair of 1933 and 1934 called a "Century of Progress," the building known as the Field Museum is 4 inches by 6 inches with upward of eight hundred pieces in it. This mosaic is 2 by 3 feet, with ten thousand pieces and can be viewed to the best advantage at from 4 to 8 feet.

I hope this discussion of mosaics will encourage you to try making a mosaic. You



"MAN-O'-WAR"

called an "inlaid mosaic," due to the fact that so many pieces are inlaid through another section, as the harness is inlaid into the head and neck of the horse—yet looks like it is entirely on the surface. It would take many drawings to show this procedure, which we will not go into now.

In discussing mosaics it must be remembered that nearly all craftsmen in the past have made their designs to be seen from at least twelve to twenty feet away. All the pictures which I have made are to be viewed at a distance of four to twelve feet,

will undoubtedly run into some difficulties as I have in the past, but I am sure you can overcome them. I personally am anxious to get started on a new and more difficult one, as there is no enjoyment or relaxation in doing something that is easy.

I am indebted to a great many people for help in numerous ways while making the picture "Man-O'-War" and would like to publicly thank them at this time. My wife, Betty, for helping with the drawing and choosing of materials as the picture progressed. Professor Alvin Krohn, of

Wauzeka, for spending one whole day with Betty and me in transferring the picture. The Reverend Norbert H. Miller, also of Wauzeka, for his help in sanding and polishing, so we could get done in time to take this picture to Detroit. Also, the following two dealers, who so considerately went out of their way to rush material to me when I ran short—Mr. LeRoy Peterson of Minneapolis, for all the cherry and blue tiger-eye, and Janoko Brothers of Porterville,

California, for white jade. Green jade was also purchased from Mr. Ernest (Curly) Jones, of Glenrock, Wyoming; black jade, sard and peristerite from Joseph Alessi of Lombard, Illinois, and Monterey jade from George Curtis, of California. A. G. Parser (New York), furnished makachite, Frank Perona (Michigan), datolite, and Chief Red Cloud, of Wauzeka, donated the red pipestone from Minnesota, for making the name.

## Iowa's Famous Effigy Mounds

by FLORENCE L. CLARK

THE EFFIGY MOUNDS OF IOWA are truly an historic site, and to the many who are planning to make the well known national parks in the west their vacation objective this summer, or to attend the Midwest Convention in St. Paul, visits enroute to smaller national park areas may add variety and informative interest to the trip. One of the newest and most accessible of these parks, just off a popular federal highway to Yellowstone Park, is Effigy Mounds National Monument in northeastern Iowa.

After crossing the Mississippi River on U. S. 18 from Prairie du Chien, Wisconsin, the new park is reached by a drive of only a few minutes north beside the great river. The 1,200 acre monument of secluded valleys and high rugged bluffs preserves some of the last traces of prehistoric Indians who thrived here nearly 1,000 years ago, while Europe was in the midst of the Crusades. In contrast to feudal Europe's complexity, the culture of the Effigy Mounds people seems simple only because of the scarcity of their remains. Their life is known solely from the burial mounds and village debris they left behind.

First settlers in the United States and Canada found mounds so numerous over much of the country that a legend grew that a mysterious race, "the Mound Builders," once had peopled the region. It is

now known "the lost Race" were ancestors of the modern Indians. Mounds were distributed from the eastern seaboard west to Texas and north into Canada, but were most numerous along the Mississippi River. They ranged in size from hardly perceptible swells in the ground to artificial hillocks as much as 100 feet high and covering several acres. Estimates indicate existence of more than 100,000 mounds before their mass destruction under pressure of an expanding white population.

Effigy mounds are distinct from the commonly seen round and linear mounds. Built in the shape of animals, birds and fish, they are found only in a limited area in Wisconsin and along the Mississippi bluffs in northeast Iowa and southeast Minnesota. The monument, fringing the Mississippi bluffs for several miles, is divided by the Yellow River and its untamed valley, often spoken of as the "wildest spot in Iowa."

The Fire Point Mound Group north of the Yellow River contains the largest bear effigy remaining in Iowa. This effigy, the Great Bear Mound, is 70 feet across the shoulders and front legs, 137 feet long, and 5 feet high.

South of the Yellow River, the Marching Bear Mound Group contains an alignment of 10 bear effigies, 3 bird effigies, and



RANGER AND VISITORS VIEWING THE MISSISSIPPI RIVER FROM FIRE POINT. This point is located on a high limestone bluff overlooking the river, and is at the end of a line of 19 prehistoric Indian mounds. It takes its name from the last mound in the line, wherein evidences of hot crematory fires were found in connection with the burials.



LITTLE BEAR MOUND, FIRE POINT MOUND GROUP, EFFIGY MOUNDS NATIONAL MONUMENT. This is a typical bear effigy mound. It has been outlined in crushed rock for clearer visualization of the mound shape. This is the first animal effigy the visitor sees in walking along the Fire Point Trail.

2 linear mounds. Almost a mile northeast of the Marching Bear Group are 3 mounds—a bear effigy, a bird effigy, and a long compound mound measuring 450 feet from end to end. Isolated mounds and groups of 2 or 3 conicals and linears are scattered throughout the area. At present, most of the mounds are covered with heavy forest growth.

Archeologists believe that the Indians erected burial mounds in the shape of animals, birds, and fish because they were the burial places of important persons. Variations in their size, shape, and content suggest that the same tribe did not build them all, that the builders were not at the same stage of cultural advancement and thus that the mounds were not all built at the same time.

Effigy mounds are a type distinct from those in surrounding regions and some of the conical and linear mounds near them, and were built during a period beginning well over 1,000 years ago and lasting until around A. D. 1300.

Although the shape and size of many mounds imply a fair degree of social organization, the basic economy of the effigy mounds people was a simple one. For food, they hunted, fished, and gathered edible plants in the woods. Available food animals included deer, bear, elk, bison, raccoon, rabbit, squirrel, opossum, beaver, turkey, ruffed grouse, and passenger pigeon. Fresh water clams, catfish, bass, and pickerel abounded in the streams; and plant food included wild rice, acorns, maple sugar, hazelnuts, hickory nuts, black walnuts, butternuts, wild cherries, gooseberries, plums, blackberries, raspberries, and grapes. They may have planted a little corn each year. After going on a summer hunt, they returned to harvest the corn, at which time perhaps they held a harvest ceremony.

A walk past the mounds along the ridges gives the visitor fine views of the Mississippi River, islands, and hills, said by world travelers to be among the finest inland water scenes. A far reaching view is from Fire

Point, so named because excavation of some of the mounds has indicated cremation burials. In the distance to the south from Fire Point is the junction of the Wisconsin River with the Mississippi, scene of the discovery of the father of the waters by Joliet and Marquette.

Effigy Mounds monument also features the white man's early history in this area. On Yellow River is the spot where Jefferson Davis, later president of the Confederacy but then a young lieutenant fresh from West Point, built and ran the first saw mill in the northwest, while he was at Fort Crawford courting his wife-to-be, Commander Zachary Taylor's beautiful daughter, Knox.

An abandoned steamboat landing at the base of one of the bluffs once was a popular place for the old wood burning boats to tie up to take on wood. The visitor more interested in natural beauty will find wild flower gardens in the valleys on the monument, and the hills covered with oaks, maples, hickory and walnut trees and carpets of ferns and mosses.

Spring is a particularly good time for nature lovers to visit the monument to see the wild flowers and birds. Bird watchers have found the monument lands an ideal observation center.

Headquarters of Effigy Mounds National monument is at the base of the bluffs beside highway 13. From there guides lead visitors up an easy trail to the mounds. Should visitors decide to spend more than a few hours at the monument, there are good hotels, motels, and restaurants in nearby towns. Visitors are especially urged by the park authorities not to molest or disturb wild life of any kind, or to carry off objects from the park which might be desired as souvenirs. Cooperation of the public in this matter will be greatly appreciated.

(Credit to the U. S. National Park Service is acknowledged for considerable information gleaned from "Effigy Mounds National Monument" folders, 1954, and for the accompanying illustrations.)



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## Profile of a State Geologist



DR. FRANK C. FOLEY, earth scientist and administrator, has been State Geologist of Kansas and Director of the State Geological Survey of Kansas since August 1, 1954. He also holds the academic rank of professor of geology at the University of Kansas.

A Canadian by birth, now a United States citizen, Dr. Foley has a broad educational background and geologic knowledge made practical through widespread experience in various parts of the United States and foreign countries. He came to Lawrence, Kansas, from Urbana, Illinois, where he was for three years head of the ground-water division of the Illinois Geological Survey and part-time research professor in the University of Illinois graduate school. In the previous decade he was a member of the United States Geological Survey, except for a period of overseas service

with the Armed Forces during World War II.

After obtaining a degree in geology at the University of Toronto in 1929, Dr. Foley was on the geology faculty first at Dartmouth College, then the University of North Dakota, and the University of Illinois. He earned a Ph.D. degree in geology at Princeton University in 1938.

Dr. Foley's big job in Kansas is of course administering the State Geological Survey, a 60-year old organization that is continuously enlarging its activities and which is rated as one of the country's top geological surveys. The Geological Survey of Kansas currently has a total staff of approximately 60 persons, about 40 of whom are geologists, ceramists, chemists, petroleum engineers, and technicians. Currently, reports on the state's geology, minerals, and ground-water resources are being published at the rate of 12 or more a year.

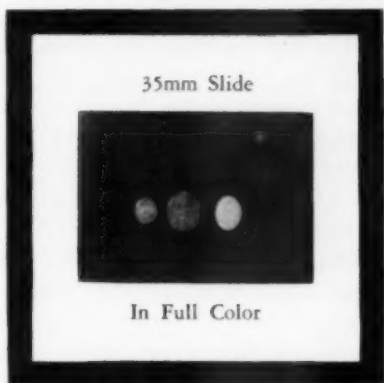
In the year and a half that he has been in Kansas, Dr. Foley has been called to most parts of the state to represent the Geological Survey. He has been in demand as a speaker, particularly on ground water and ground-water geology. Through these grass-roots contacts, he already has become acquainted with many Kansans and has observed much of the state's geology, mineral resources, and scenery. In fact he commonly makes the statement, "I became a Kansan in a hurry."

Dr. Foley is a member of the Geological Society of America, the Society of Economic Geologists, the American Geophysical Union, the National Water Well Association, Sigma Xi, the Kansas Geological Society, and the Kansas Academy of Science.

Born in Belleville, Ontario, in 1906, he has been a citizen of the United States since 1937. In 1934 he married Miss Adelaide Kirk of Niagara, North Dakota. The Foleys have one daughter, Barbara, a junior in Lawrence High School. Recently they built a new home, into which they moved during the last week in January, 1956.

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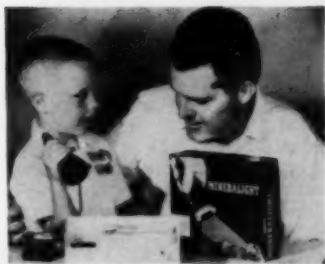
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## What Is a Brachiopod?

by DR. FRANK L. FLEENER

(At the January meeting of the Paleontological section of the Earth Science Club of Northern Illinois (ESCONI), Frank L. Fleener, of Joliet, gave an introductory survey of this large and complex subject, which he facetiously stated would drive anyone crazy who attempted to comprehend all of the details of this entire group or phylum. Following is the substance of his remarks, as reported by Mrs. Stella Bowick.)

BRACHIOPODS WERE PIONEERS in the animal kingdom. They came into being more than two billion years ago. The first ones seen in the Cambrian were as developed as some of those in the Ordovician and Silurian. Just when and how they developed from the Bryozoa is not known. These two were grouped together as Molluscoidea until later study convinced the zoologists that they should be separated into separate phyla.

Brachiopods are small marine animals with dorsal and ventral shells unequal in size, but with bi-lateral symmetry, that is, their right and left sides exactly alike. There are about 70 genera and 220 species still living today, largely in the warm waters from Japan down through the Malayan area. One species, *Terebratulina septentrionalis*, lives from Nova Scotia down to Cape Cod, with many off the coast of Maine in shallow waters.

In general they live at no great depth and where tides are not too strong, where there is a constant washing in of the microscopic animal and plant life on which they feed. The 17th century English paleontologists found many Brachiopods and engaged in many acrimonious discussions on classification. Some kept trying to see clam like structures where there were none. In the United States many were found in those rocks that formed the backbone of our land. Dr. James Hall, of the New York State Museum, succeeded in amassing a great collection and studied them until they were well organized.

Brachiopods may be divided into two groups, attached and free living. Those with a little round hole near the hinge line

were attached with a three to four inch slender black thread called a byssus. Those with a triangular opening had a short stout stalk, short hinge line, and no teeth to hold the two valves together. The shells were very thin. In general there was not good protection from predators, but they lived in great colonies, literally covering the floor of the sea in shallow water.

The free living group have a closed hinge line, showing that they had no means of attachment. They burrowed in the sand and mud, living under a variety of conditions, with some species in several environments. Perhaps their moving about was the beginnings of curiosity. For sustenance they scavenged and also ate diatoms and other microscopic organisms. For this reason they were more successful than their more sedate relatives.

The number of fossil brachiopods is legion, there being some 6,000 species and 700 genera known. In size they range from microscopic to hand's breadth. They are grouped in many divisions on variations in shell form. In many, as in other forms, bizarre ornamentation precedes death of the species. A piece of lower Cambrian sandstone from Minnesota that somehow escaped the forces of metamorphism which obliterated most fossils of that era, shows prints of oboloid Brachiopods about  $\frac{3}{8}$  inch diameter with very thin shell, probably of chitinous material. The hinge is pin point size, making it quite vulnerable to predators. Later forms developed lime carbonate shells, and some added phosphate. The hinge lines became stronger. The adductor muscles, whose scars are plainly seen in some specimens, became strong enough to hold the shells together when attacked. Nearly all the shells we find are casts or replacements, molecule by molecule, of the lime carbonate with more durable silica. The soft bodied animal inside had a support like its shell for the respiratory ap-

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paratus. It varied from two short curved processes to two complex spiral ribbons. Casts of these are rare prizes.

The internal anatomy of the Brachiopod is much more complex than that of the corals. There is a digestive system into which the tentacles sweep the food particles; a simple heart and blood system; very simple nervous system, and a respiration system much like the Bryozoa.

Brachiopods are found all through the geologic calendar. As before stated, they were well developed when first found in the Cambrian, a period which lasted for half the geologic time. In the Ordovician the same ones found in the Mississippi valley were also living in Europe all the way

to the Ural Mountains. This is the age when the sea floors were paved with brachiopods, many kinds. In the Silurian there were fewer genera and species, but there was another upsurge in Devonian. Again the seas teemed with Brachiopods. There were few in the Pennsylvanian, with some of the most robust forms in the latter part of this period. In Kansas, Oklahoma, and north Texas there are many of these large productids in the limy shales, some very ornamental. In the Permian they were losing ground, with almost none in the Mesozoic. Now they are 200, some in the warm Asian waters. Those species that are limited in time distribution are excellent index fossils, well known to field geologists.

## The Discovery of Schmierkaesite

by DR. HERBERT W. KUHM

THOSE ROCKHOUNDS, boulderbeagles and pebblepups of the Rockhammer Geological Society who took part in that eventful field trip to the Wienerschnitzel Quarry will ever remember it. The magnet drawing us was that great mineralogical and fossilogical genius — Prof. Igneous Q. Schmierkaes, professor of geology, Cambert College, Roquefort, Wisconsin. Schmierkaes was regarded as a high-ranking geologist; in fact, many even regarded him as the rankest.

The crack of dawn had just resounded against the eastern horizon when we assembled in front of the Professor's mansion on Skidde Row. The Professor appeared, with bags under the arms and eyes, bowed to our volley of huzzas, strode to his racy convertible—(a 1903 Stutz whose top had rotted off!!)—roused the ancient engine with a whirl of the crank, tootled the horn jauntily, and chugged off in the van of our geological safari to fertile fossil fields.

The Professor's jalopy took the lead of our motorcade at its top speed of ten miles an hour, so the rest of our cars groaned along in low gears, respectfully trailing the

tail-light—(a red barn lantern!)—of the Professor's horseless carriage. Who were we to risk offending such top geological brass as Prof. Schmierkaes by passing him?

By devious backwoods roads and old Indian trails we came at last to our apparent goal. Bringing his refugee from a junk pile to a squealing halt, the Professor leaped out, struck a MacArthurian pose and cried: "Lafayette, ve iss here!" With that he strode briskly forth, only to trip over a small monadnock of quarry tailings. Nonchalantly spitting out a mouthful of granulated Silurian fossilification, the undaunted Professor led our descent into the maw of the chasm, which yawned darkly in the dim dawn light, thickened by a pall of acrid smoke. Groping, stumbling, coughing, fumbling, but ever following our leader, we came at length to the floor of the pit only to be greeted by a gruff: "Wot do youse joiks want here?"

Unawed by this surly welcome, the Professor replied: "My goot man, ve haff come to your kvarry to resurrect der dainty Devonian drilobite undt Cambrian crinoidt, der shbargkling markersite undt dilly

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dolomite." To which came the answering snort: "Youse won't find none o' dem animules here. We got adenoids, hellgramites, and a helluva lotta mosquito bites; but dis ain't to quarry, mister, dis is da county dump! Furdermore, me name ain't Lafferyette, needer; it's Moiphy!"

Only momentarily was the Professor miffed, but retrieved his ego pronto. Retracing our steps we proceeded some miles farther to where a sign clearly marked the Wienerschnitzel Quarry. The Professor again led us into the quarry pit, carrying an apparatus that looked like a walkie-talkie combined with telescope, microscope, stethoscope, stroboscope, bathyscope, horoscope and snorkel tubes.

"Looking for uranium, Professor? Is that your Geiger counter?" someone queried. "Geiger, schmeiger!" he snorted, with searing disdain. "Vot I zeek vill class uranium mitt baking zoda. I zeek dot prize mineral uf our day, dot elooziff member of der pizzapyrite family now known only as Mineral X. But some day der vorldt vill call it Schmierkaesite, after its discoverer—Me!"

With that the Professor began his search in earnest. With open-mouthed anticipation, the rest of us watched his every move as though hypnotized. Like a bloodhound scenting the trail, his nostrils quivered with excitement. At a spot where the snorkels reacted like Herod's eyeballs when he beheld Salome, he began to claw at the stone with pick and pike as if to pry from the earth its primeval secret. At last he came to a substance that fluoresced a luminous chartreuse, and his beady obsidian orbs bugged out like a pair of black Australian fire opals.

"Excelsior mitt Excaliber yet!" he shouted. "Lapidem Omnem Movere! My discovery vill shake der vorldt!" With that he emptied his rucksack of a dozen sticks of TNT. Made apprehensive by the reckless manner in which he was handling or rather manhandling the TNT, the rest of us ran helter-skelter for shelter. And none

too soon. There was a thunderous "THOOM!" Then ominous silence.

The Professor was right. He really HAD shaken the world! In fact, still shaken and shaking, the more intrepid of us cautiously stuck our heads out from the Cambrian caves, crannies and crevices into which we had crawled for cover. Where the Professor had worked was an abyss that looked like the orifice of a volcano. He surely had "movered" all the "lapidems" in sight, the blast leaving no stone unturned!

In a dufflebag we salvaged all visible remnants of the late Professor and reverently, albeit a bit gingerly, carried them to the nearest mortician. In ancient Rockhammer cemetery is a new grave. Over it blooms a riot of sea lilies and flower agates bordered by a mass of barite roses, all carpeted by agate mosses. At its head is a tombstone that fluoresces a deep chartreuse in the eerie oolite of the moon. Its carven inscription reads:

~~~~~  
HERE LIES  
PROF. IGNEOUS Q. SCHMIERKAES  
b. 1888—d. 1956  
AUTHOR — GEOLOGIST  
DISCOVERER OF SCHMIERKAESITE  
— • —  
HE DIED A MARTYR TO HIS SCIENCE  
— • —  
MAY HE REST IN PEACE  
AND MAY HIS PIECES REST  
~~~~~

Some day, mayhap some 210 million years hence in the Atomian Period of the Hydrozoic Era, some prying paleontologist probing at the site of ancient Wienerschnitzel Quarry, may come upon some fossilized Schmierkaesian remains that fluoresce a chatoyant chartreuse.

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## Midwest Club News

BERNICE WIENRANK, *Club Editor*

4717 North Winthrop Avenue  
Chicago 40, Illinois

MINERALOGISTS OF JOLIET on January 26 listened to Dr. Frank L. Fleener tell the interesting story of "Synthetic Diamonds." Dr. Fleener sketched the history of outstanding experiments in this field and their results, from 1828 to the successful culmination, on February 15, 1955, of five years of intensive research on synthetic diamonds by the General Electric Laboratories.

WISCONSIN GEOLOGICAL SOCIETY received a lesson in faceting on January 9 from Mr. L. A. Murphy. Afterwards, under Mr. Murphy's direction, a contest in potato-faceting was held. Prizes were awarded for the best faceted tubers.

INDIANA GEOLOGY AND GEM SOCIETY on January 13 heard member Francis Hueber speak on "The Splendored Realm of Copper." Mr. Hueber amplified his lecture with demonstrations of colorful chemical reactions involving copper and a beautiful display of copper minerals ranging in hue from the lovely red of the metal to the vivid green of malachite.

MICHIGAN MINERALOGICAL SOCIETY on April 9 will hear Hugh Millar of the Carboloy Department of the General Electric Co., give an illustrated lecture on the "Growth of Synthetic Diamonds." MMS meets at the Cranbrook Institute of Science, Bloomfield Hills, Michigan, the second Monday of each month at 8:00 P. M. Visitors are cordially invited.

EARTH SCIENCE CLUB OF NORTHERN ILLINOIS recently made a paleontological tour of the University of Chicago. First it visited the Department of Botany, where Dr. Paul Voth told about many new developments in the field of botany and then escorted the group through the greenhouses. In the conservatory he pointed out the primitive pteridophyte and gymnosperm plants and explained their life cycles. The university has a marvelous collection of cycas, zamia and encephalartos plants, which first appeared in the Permian period and were abundant throughout the Mesozoic periods.

Next, the party was conducted through the Walker Museum by Dr. Ralph Johnson. He explained that this was a working museum and that the fossils on display were almost all of the invertebrate type. The vertebrate fossils are housed in the Chicago Natural History Museum, which is a fireproof building. Dr. Johnson then took the club on a field trip to Texas, via colored slides, where the University of Chicago and Harvard University are collecting and studying vertebrate fossils of the Permian period. He also showed the group a fossil vertebrate that he had found. It was in the process of assembly and appeared to be about ten feet long. Because of the shape of its pelvic region, he stated, it seems to be an intermediate between a reptile and a

mammal. Dr. Johnson said that when fossil bone is exposed to the weather, it turns a bluish color. So, next time you are out prospecting, watch for blue chips, you may find a vertebrate fossil, "horse shoes and all!" as did one of ESCONT'S budding paleontologists.

MARQUETTE GEOLOGISTS ASSOCIATION on January 7 viewed kodachrome slides of Dr. J. Daniel Willems' gem and mineral collection. While discussing the gems shown on the slides, Dr. Willems commented that the naming of gem stones is almost a lost art and classified as the most beautiful gem names, those of four or possibly five letters, such as onyx, opal, ruby and pearl.

CEDAR VALLEY ROCKS AND MINERALS SOCIETY heard Mrs. Frederick Stark, at its January 18 meeting, give an interesting account of her trip through the McGill Copper Smelter, McGill, Nevada. Mrs. Stark also discussed how copper is mined and where it is found.

NEBRASKA MINERAL AND GEM CLUB on February 13 heard James Marshall, of Offutt Air Force Base, speak on "The Unscientific Side of Rocks and Minerals. Selections from the society's collection of mineral slides were used to illustrate the talk.

CENTRAL ILLINOIS ROCKHOUNDS is making plans for its annual exhibit of gems, fossils, minerals and artifacts, which it plans to hold some time in May. On February 5 the group heard Howard D. Bell, graduate gemologist, speak on "Gem Stones."

EVANSVILLE LAPIDARY SOCIETY celebrated its third anniversary with a banquet on January 7. After dinner the group was shown the W. Scott Lewis slide set, "Minerals Used for Gem and Ornamental Purposes."

DES MOINES LAPIDARY SOCIETY will hold its first show May 3-20, at the Art Center in Des Moines, Iowa. It will have several features of special interest, including: a totally new method of setting free forms without bell caps, drilling or wrap-arounds; an improved method of mounting transparencies in shadow boxes; large gem stone mobiles and a map of the United States with each state cut from one of its native rocks. The exhibits will be open to visitors every day except Mondays and all possible friendly courtesies, trading and information, will be extended to visiting rockhounds. For further information write: Gus Brown, 819-12th Street Place, Des Moines, Iowa.

ISHPEMING ROCK AND MINERAL CLUB on January 26 heard Judy Lemin lecture on "Fluorite and its Uses." Miss Lemin also displayed a collection of fluorite specimens from Illinois, Kentucky and Indiana.

CENTRAL IOWA MINERAL SOCIETY will hold

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\*

CHICAGO ROCKS AND MINERALS SOCIETY marked its tenth anniversary on February 11 with a birthday party. Highlight of the evening was a talk by Mr. H. A. Walstrom, sponsor of the PROSPECTOR CLUB, on "Prospecting." Mr. Walstrom, who owns the Uranium Ore and Supply Co., has successfully prospected for uranium in Idaho and Colorado.

#### NEWS OF OTHER SOCIETIES

OKLAHOMA MINERAL AND GEM SOCIETY will meet in the University of Oklahoma Museum, Norman, Oklahoma, on April 5, to hear Dr. Stephen Borhegyi, Director of the Museum, speak on "Jade." The museum will be open before and after the meeting to permit the visitors to view its exhibits, which include a very fine display of Chinese carvings.

\*

COMPTON GEM AND MINERAL CLUB visited California's desert on February 2, via kodachrome slides. The slides, which depict the geology, flora and fauna of the desert, were made by Donna, Kathy and Verl Martin during their numerous sojourns in this arid region.

\*

WASATCH GEM SOCIETY on February 16 heard jeweler William McConahay speak on "Cameos." Mr. McConahay also displayed a fine collection of cameos.

\*

MINERALOGICAL SOCIETY OF PENNSYLVANIA will hold its third Annual Symposium on March 17-18 in the Armory at Doylestown, Pennsylvania. It will feature excellent displays of all the branches of the earth sciences and the lapidary arts. Dealers will show the latest in lapidary equipment and have on sale choice mineral specimens and gem materials.

\*

MINERALOGICAL SOCIETY OF ARIZONA heard Dr. Richard Pearl discuss "Mineral and Gem Locations of Colorado," at its January 3 meeting. One of the most famous mineral localities in the world, stated Dr. Pearl, is on Mount Antero in Colorado. High above the timber-line of this mountain, accessible only two months of the year, is an area which contains 30 varieties of gem materials. At the extreme top of the mountain, which rises 14,000 feet above sea level, lies Colorado's finest aquamarine deposit.

\*

LAPIDARY ARTS GUILD OF AUSTIN will be host to the Texas Federation Show on May 11-13. The society reports that each member is on two or more committees and that all indications are that this will be one of the finest gem shows held this year.

\*

MIAMI MINERAL AND GEM SOCIETY on February 13 heard Mr. A. E. Pool tell about "A Be-

ginner's Experience in Faceting" and Mr. Lawrence Levy lecture on "Diamonds." Mr. Levy illustrated his talk with replicas of world-famous diamonds. Door prizes for the evening included a faceted amethyst (February's birthstone), a sterling silver mounting, cabochons and polished agatized coral.

\*

WICHITA GEM AND MINERAL SOCIETY on January 28 heard Linwood L. Hodgdon, Professor of Anthropology at Kansas State College, give an illustrated lecture on "The Plains Indians." Professor Hodgdon outlined what is known about the past life of the Plains Indians and then discussed the methods used by archaeologists and anthropologists in reconstructing their cultural history.

\*

PASADENA LAPIDARY SOCIETY played a rock identification game at its February 1 meeting that was educational, profitable and fun. Each person present was given a rock to identify, and in some cases to tell where it was found; if he named the rock he was allowed to keep it, if not the rock was raffled off later in the evening and the proceeds from the raffle put in the club's treasury. The rocks, which were all fine specimens, were donated by member Charles Schweitzer.

#### RECOMMENDED READINGS

"Living Organizations in the Formation of Minerals," Anonymous, February issue of *The Pick and Dop Stick*. Many of our great mineral deposits are of organic origin. This article covers the most important of these.

\*

"Arrowheads," By Dr. Robert Bell, January, February and March issues of *Earth Science News*. This article is undoubtedly one of the best to date for the amateur on the popular subject of arrowheads.

\*

"Plants as Indicators of Mineral Deposits," by Edgar Wherry, January Issue of *Keystone Newsletter*. It has long been known that vegetation changes markedly from place to place due to the mineral composition of the soil. Today a modern science known as biogeochemistry is utilizing this information to locate new mineral deposits.

Two Bureau of Mines publications on gem minerals currently are being sold by the Superintendent of Documents, Government Printing Office, Washington 25, D. C. One, the Gem Stones chapter of the 1953 Minerals Yearbook, lists gems discovered in that year alone and the 41 States, counties, and localities in which they were found.

The other publication, also entitled Gem Stones, is a chapter from the Bureau's new Bulletin 556, "Mineral Facts and Problems," which presents general information on 87 mineral commodities. This chapter contains sections on the properties and classification of gem stones, geologic occurrence and geographic distribution, gem-stone cutting, and uses.



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## IN A LIGHTER VEIN: WHAT IS A WHATISIT?



SANDSTONE CONCRETIONS (JUST A BIT TOUCHED UP)

MOST FOLKS have some imagination, many have too much and others too little, but in general life without it would, indeed, be a pretty drab affair. Even when we look at nature in the rough we may see many illusionary objects, some with a semblance of reality, and others which are pretty "far fetched." The Great Stone Face, the Mount of the Holy Cross, and the Great Carbuncle are all examples of what we have in mind.

Many polishers working with agates, especially the scenic variety, often allow their imaginations to run riot, and conjure up all kinds of pictures, some almost perfect images of the real thing, and others only poor imitations. We have no quarrel with those who may see beautiful butterflies, lakes or ocean shoreline scenes, but when it comes to pink elephants, et cetera, we become a bit skeptical.

When we consider the matter of concretionary forms, nature often does really let herself go. In certain sandstones one may find so many odd shaped concretionary forms that with only little imagination he can find almost any sort of shaped object he desires, from potatoes to turtles. It is here that nature in shaping her objects really goes on a spree.

One need only look at the collection of odd shaped sandstone concretions here pictured to find almost any kind of a subject imaginable,

and in addition "what have you?" This display belongs to B. J. Keyes of Worland, Wyoming, and was exhibited last summer at the convention of the Rocky Mountain Federation at Rawlins, Wyoming. Without any reworking of the specimens whatever, except for the use of chalk and pencil, one beholds an array of human figures, animals, birds and fruits which possess striking resemblance to the real thing. This is certainly an entertaining, if not too educational an exhibit, which we dare say is not altogether a waste of time, as it might possibly attract the attention of someone who might thereby later become greatly interested in the miner's hobby.—B.H.W.

### "AGATE PETE"

For those who enjoy reading in the lighter vein, we recommend the compilation of "Agate Pete Stories and Poems," by our friend H. L. Zollars, of El Paso, Texas.

First appearing in the *Voice*, the popular bulletin of the El Paso Mineral and Gem Society, these thrilling stories of Agate Pete's fantastic experiences were so enthusiastically received as to encourage the author to assemble and publish them in book form. Anyone interested in securing a copy should write Mr. Zollars, whose address is 810 E. Rio Grande Street, El Paso, Texas.

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